WHAT IS CLAIMED IS:

1. A thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a beam extending between the first support and the second support, the beam having a first side, a second side, a beam length and a beam mid-point, the beam being substantially straight along the first side;

the beam comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment width orthogonal to the beam length, the beam thus forming a corresponding plurality of beam segment widths;

wherein the plurality of beam segment widths corresponding to the beam vary along the beam length based on a predetermined pattern;

so that a heating of the beam causes a beam buckling and the beam mid-point to translate in a predetermined direction generally normal to and outward from the second side.

2. The thermal actuator of **claim 1**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment widths corresponding to successive beam segments do not decrease and at least sometimes increase, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease.

3. The thermal actuator of **claim 2**, the heating of the beam provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

4. The thermal actuator of **claim 2**, the heating of the beam provided by a beam heater current supplied by an included beam input and beam output.

5. The thermal actuator of **claim 2**, wherein the beam is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

6. The thermal actuator of **claim 2**, wherein the beam is fabricated in a device layer of a silicon-on-insulator wafer.

7. The thermal actuator of **claim 2**, wherein the beam comprises exactly three (3) beam segments.

8. The thermal actuator of **claim 2**, wherein the beam comprises a plurality (n) of beam segments, where n does not equal 3.

9. The thermal actuator of **claim 2**, wherein the beam comprises exclusively beam segments having substantially parallel sides.

10. The thermal actuator of **claim 2**, wherein the beam comprises exactly two (2) beam segments that are substantially equal with respect to their corresponding beam segment lengths and beam segment widths.

11. A thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a plurality of beams extending in parallel between the first support and the second support, thus forming a beam array;

each beam of the beam array having a first side, a second side, a beam length and a beam mid-point, each beam being substantially straight along its first side;

each beam of the beam array comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment width orthogonal to the beam length, each beam thus forming a corresponding plurality of beam segment widths;

wherein the plurality of beam segment widths corresponding to each beam vary along the beam length based on a predetermined pattern;

an included coupling beam extending orthogonally across the beam array to couple each beam of the beam array substantially at the corresponding beam mid-point;

so that a heating of the beam array causes a beam array buckling and the coupling beam to translate in a predetermined direction generally normal to and outward from the second sides of the array beams.

12. The thermal actuator of **claim 11**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment widths corresponding to successive beam segments do not decrease and at least sometimes increase, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease.

13. The thermal actuator of **claim 12**, the heating of the beam array provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

14. The thermal actuator of **claim 12**, wherein each beam of the beam array is heated by a beam heater current supplied by an included beam input and beam output, thus forming the heating of the beam array.

15. The thermal actuator of **claim 12**, wherein each beam of the beam array is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

16. The thermal actuator of **claim 12**, wherein each beam of the beam array is fabricated in a device layer of a silicon-on-insulator wafer.

17. The thermal actuator of **claim 12**, wherein each beam of the beam array comprises exactly three (3) beam segments.

18. The thermal actuator of **claim 12**, wherein each beam of the beam array comprises a plurality (n) of beam segments, where n does not equal 3.

19. The thermal actuator of **claim 12**, wherein the beam array comprises exactly three (3) beams.

20. The thermal actuator of **claim 12**, wherein the beam array comprises a plurality (n) of beams, where n does not equal 3.

21. A thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a beam extending between the first support and the second support, the beam having a first side, a second side, a beam length and a beam mid-point, the beam being substantially straight along the second side;

the beam comprised of a plurality of beam segments, each beam segment of the plurality of beam segments being having a beam segment width orthogonal to the beam length, the beam thus forming a corresponding plurality of beam segment widths;

wherein the plurality of beam segment widths corresponding to the beam vary along the beam length based on a predetermined pattern;

so that a heating of the beam causes a beam buckling and the beam mid-point to translate in a predetermined direction generally normal to and outward from the second side.

22. The thermal actuator of **claim 21**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not decrease and at least sometimes increase.

23. The thermal actuator of **claim 22**, the heating of the beam provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

24. The thermal actuator of **claim 22**, the heating of the beam provided by a beam heater current supplied by an included beam input and beam output.

25. The thermal actuator of **claim 22**, wherein the beam is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

26. The thermal actuator of **claim 22**, wherein the beam is fabricated in a device layer of a silicon-on-insulator wafer.

27. The thermal actuator of **claim 22**, wherein the beam comprises exactly three (3) beam segments.

28. The thermal actuator of **claim 22**, wherein the beam comprises a plurality (n) of beam segments, where n does not equal 3.

29. The thermal actuator of **claim 22**, wherein the beam comprises exclusively beam segments having substantially parallel sides.

30. The thermal actuator of **claim 22**, wherein the beam comprises exactly two (2) beam segments that are substantially equal with respect to their corresponding beam segment lengths and beam segment widths.

31. A thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a plurality of beams extending in parallel between the first support and the second support, thus forming a beam array;

each beam of the beam array having a first side, a second side, a beam length and a beam mid-point, each beam being substantially straight along its second side;

each beam of the beam array comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment width orthogonal to the beam length, each beam thus forming a corresponding plurality of beam segment widths;

wherein the plurality of beam segment widths corresponding to each beam vary along the beam length based on a predetermined pattern;

an included coupling beam extending orthogonally across the beam array to couple each beam of the beam array substantially at the corresponding beam mid-point;

so that a heating of the beam array causes a beam array buckling and the coupling beam to translate in a predetermined direction generally normal to and outward from the second sides of the array beams.

32. The thermal actuator of **claim 31**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not decrease and at least sometimes increase.

33. The thermal actuator of **claim 32**, the heating of the beam array provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

34. The thermal actuator of **claim 32**, wherein each beam of the beam array is heated by a beam heater current supplied by an included beam input and beam output, thus forming the heating of the beam array.

35. The thermal actuator of **claim 32**, wherein each beam of the beam array is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

36. The thermal actuator of **claim 32**, wherein each beam of the beam array is fabricated in a device layer of a silicon-on-insulator wafer.

37. The thermal actuator of **claim 32**, wherein each beam of the beam array comprises exactly three (3) beam segments.

38. The thermal actuator of **claim 32**, wherein each beam of the beam array comprises a plurality (n) of beam segments, where n does not equal 3.

39. The thermal actuator of **claim 32**, wherein the beam array comprises exactly three (3) beams.

40. The thermal actuator of **claim 32**, wherein the beam array 813 comprises a plurality (n) of beams, where n does not equal 3.

41. A thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a beam extending between the first support and the second support, the beam having a first side, a second side, a beam length and a beam mid-point, the beam being substantially straight along the first side;

the beam comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment average width orthogonal to the beam length, the beam thus forming a corresponding plurality of beam segment average widths;

wherein the plurality of beam segment average widths corresponding to the beam vary along the beam length based on a predetermined pattern;

so that a heating of the beam causes a beam buckling and the beam mid-point to translate in a predetermined direction generally normal to and outward from the second side.

42. The thermal actuator of **claim 41**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment average widths corresponding to successive beam segments do not decrease and at least sometimes increase, and along the beam length from the beam mid-point to the second support, beam segment average widths corresponding to successive beam segments do not increase and at least sometimes decrease.

43. The thermal actuator of **claim 42**, the heating of the beam provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

44. The thermal actuator of **claim 42**, the heating of the beam provided by a beam heater current supplied by an included beam input and beam output.

45. The thermal actuator of **claim 42**, wherein the beam is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

46. The thermal actuator of **claim 42**, wherein the beam is fabricated in a device layer of a silicon-on-insulator wafer.

47. The thermal actuator of **claim 42**, wherein the beam comprises exactly five (5) beam segments.

48. The thermal actuator of **claim 42**, wherein the beam comprises a plurality (n) of beam segments, where n does not equal 5.

49. The thermal actuator of **claim 42**, wherein the beam comprises exactly three (3) beam segments having substantially parallel sides.

50. The thermal actuator of **claim 42**, wherein the beam comprises exactly two (2) beam segments that are substantially equal with respect to their corresponding beam segment lengths and beam segment widths.

51. A thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a plurality of beams extending in parallel between the first support and the second support, thus forming a beam array;

each beam of the beam array having a first side, a second side, a beam length and a beam mid-point, each beam being substantially straight along its first side;

each beam of the beam array comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment average width orthogonal to the beam length, each beam thus forming a corresponding plurality of beam segment average widths;

wherein the plurality of beam segment average widths corresponding to each beam vary along the beam length based on a predetermined pattern;

an included coupling beam extending orthogonally across the beam array to couple each beam of the beam array substantially at the corresponding beam mid-point;

so that a heating of the beam array causes a beam array buckling and the coupling beam to translate in a predetermined direction generally normal to and outward from the second sides of the array beams.

52. The thermal actuator of **claim 51**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment average widths corresponding to successive beam segments do not decrease and at least sometimes increase, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease.

53. The thermal actuator of **claim 52**, the heating of the beam array provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

54. The thermal actuator of **claim 52**, wherein each beam of the beam array is heated by a beam heater current by an included beam input and beam output, thus forming the heating of the beam array.

55. The thermal actuator of **claim 52**, wherein each beam of the beam array is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

56. The thermal actuator of **claim 52**, wherein each beam of the beam array is fabricated in a device layer of a silicon-on-insulator wafer.

57. The thermal actuator of **claim 52**, wherein each beam of the beam array comprises exactly five (5) beam segments.

58. The thermal actuator of **claim 52**, wherein each beam of the beam array comprises a plurality (n) of beam segments, where n does not equal 5.

59. The thermal actuator of **claim 52**, wherein the beam array comprises exactly three (3) beams.

60. The thermal actuator of **claim 52**, wherein the beam array comprises a plurality (n) of beams, where n does not equal 3.

61. An optical waveguide switch comprising a thermal actuator, the thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a beam extending between the first support and the second support, the beam having a first side, a second side, a beam length and a beam mid-point, the beam being substantially straight along the first side;

the beam comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment width orthogonal to the beam length, the beam thus forming a corresponding plurality of beam segment widths;

wherein the plurality of beam segment widths corresponding to the beam vary along the beam length based on a predetermined pattern;

so that a heating of the beam causes a beam buckling and the beam mid-point to translate in a predetermined direction generally normal to and outward from the second side.

62. The optical waveguide switch of **claim 61**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment widths corresponding to successive beam segments do not decrease and at least sometimes increase, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease.

63. The optical waveguide switch of **claim 62**, the heating of the beam provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

64. The optical waveguide switch of **claim 62**, the heating of the beam provided by a beam heater current supplied by an included beam input and beam output.

65. The optical waveguide switch of **claim 62**, wherein the beam is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

66. The optical waveguide switch of **claim 62**, wherein the beam is fabricated in a device layer of a silicon-on-insulator wafer.

67. The optical waveguide switch of **claim 62**, wherein the beam comprises a plurality (n) of beam segments, where n does not equal 3.

68. The optical waveguide switch of **claim 62**, wherein the beam comprises exactly three (3) beam segments.

69. The optical waveguide switch of **claim 62**, wherein the beam comprises exclusively beam segments having substantially parallel sides.

70. The optical waveguide switch of **claim 62**, wherein the beam comprises exactly two (2) beam segments that are substantially equal with respect to their corresponding beam segment lengths and beam segment widths.

71. An optical waveguide switch comprising a thermal actuator, the thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a plurality of beams extending in parallel between the first support and the second support, thus forming a beam array;

each beam of the beam array having a first side, a second side, a beam length and a beam mid-point, each beam being substantially straight along its first side;

each beam of the beam array comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment width orthogonal to the beam length, each beam thus forming a corresponding plurality of beam segment widths;

wherein the plurality of beam segment widths corresponding to each beam vary along the beam length based on a predetermined pattern;

an included coupling beam extending orthogonally across the beam array to couple each beam of the beam array substantially at the corresponding beam mid-point;

so that a heating of the beam array causes a beam array buckling and the coupling beam to translate in a predetermined direction generally normal to and outward from the second sides of the array beams.

72. The optical waveguide switch of **claim 71**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment widths corresponding to successive beam segments do not decrease and at least sometimes increase, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease.

73. The optical waveguide switch of **claim 72**, the heating of the beam array provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

74. The optical waveguide switch of **claim 72**, wherein each beam of the beam array is heated by a beam heater current supplied by an included beam input and beam output, thus forming the heating of the beam array.

75. The optical waveguide switch of **claim 72**, wherein each beam of the beam array is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

76. The optical waveguide switch of **claim 72**, wherein each beam of the beam array is fabricated in a device layer of a silicon-on-insulator wafer.

77. The optical waveguide switch of **claim 72**, wherein each beam of the beam array comprises a plurality (n) of beam segments, where n does not equal 3.

78. The optical waveguide switch of **claim 72**, wherein each beam of the beam array comprises exactly three (3) beam segments.

79. The optical waveguide switch of **claim 72**, wherein the beam array comprises a plurality (n) of beams, where n does not equal 3.

80. The optical waveguide switch of **claim 72**, wherein the beam array comprises exactly three (3) beams.

81. An optical waveguide switch comprising a thermal actuator, the thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a beam extending between the first support and the second support, the beam having a first side, a second side, a beam length and a beam mid-point, the beam being substantially straight along the second side;

the beam comprised of a plurality of beam segments, each beam segment of the plurality of beam segments being having a beam segment width orthogonal to the beam length, the beam thus forming a corresponding plurality of beam segment widths;

wherein the plurality of beam segment widths corresponding to the beam vary along the beam length based on a predetermined pattern;

so that a heating of the beam causes a beam buckling and the beam mid-point to translate in a predetermined direction generally normal to and outward from the second side.

82. The optical waveguide switch of **claim 81**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not decrease and at least sometimes increase.

83. The optical waveguide switch of **claim 82**, the heating of the beam provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

84. The optical waveguide switch of **claim 82**, the heating of the beam provided by a beam heater current supplied by an included beam input and beam output.

85. The optical waveguide switch of **claim 82**, wherein the beam is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

86. The optical waveguide switch of **claim 82**, wherein the beam is fabricated in a device layer of a silicon-on-insulator wafer.

87. The optical waveguide switch of **claim 82**, wherein the beam comprises a plurality (n) of beam segments, where n does not equal 3.

88. The optical waveguide switch of **claim 82**, wherein the beam comprises exactly three (3) beam segments.

89. The optical waveguide switch of **claim 82**, wherein the beam comprises exclusively beam segments having substantially parallel sides.

90. The thermal actuator of **claim 82**, wherein the beam comprises exactly two (2) beam segments that are substantially equal with respect to their corresponding beam segment lengths and beam segment widths.

91. An optical waveguide switch comprising a thermal actuator, the thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a plurality of beams extending in parallel between the first support and the second support, thus forming a beam array;

each beam of the beam array having a first side, a second side, a beam length and a beam mid-point, each beam being substantially straight along its second side;

each beam of the beam array comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment width orthogonal to the beam length, each beam thus forming a corresponding plurality of beam segment widths;

wherein the plurality of beam segment widths corresponding to each beam vary along the beam length based on a predetermined pattern;

an included coupling beam extending orthogonally across the beam array to couple each beam of the beam array substantially at the corresponding beam mid-point;

so that a heating of the beam array causes a beam array buckling and the coupling beam to translate in a predetermined direction generally normal to and outward from the second sides of the array beams.

92. The optical waveguide switch of **claim 91**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not decrease and at least sometimes increase.

93. The optical waveguide switch of **claim 92,** the heating of the beam array provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

94. The optical waveguide switch of **claim 92**, wherein each beam of the beam array is heated by a beam heater current supplied by an included beam input and beam output, thus forming the heating of the beam array.

95. The optical waveguide switch of **claim 92**, wherein each beam of the beam array is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

96. The optical waveguide switch of **claim 92**, wherein each beam of the beam array is fabricated in a device layer of a silicon-on-insulator wafer.

97. The optical waveguide switch of **claim 92**, wherein each beam of the beam array 813 comprises a plurality (n) of beam segments, where n does not equal 3.

98. The optical waveguide switch of **claim 92**, wherein each beam of the beam array comprises exactly three (3) beam segments.

99. The optical waveguide switch of **claim 92**, wherein the beam array comprises a plurality (n) of beams, where n does not equal 3.

100. The optical waveguide switch of **claim 92**, wherein the beam array comprises exactly three (3) beams.

101. An optical waveguide switch comprising a thermal actuator, the thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a beam extending between the first support and the second support, the beam having a first side, a second side, a beam length and a beam mid-point, the beam being substantially straight along the first side;

the beam comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment average width orthogonal to the beam length, the beam thus forming a corresponding plurality of beam segment average widths;

wherein the plurality of beam segment average widths corresponding to the beam vary along the beam length based on a predetermined pattern;

so that a heating of the beam causes a beam buckling and the beam mid-point to translate in a predetermined direction generally normal to and outward from the second side.

102. The optical waveguide switch of **claim 101**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment average widths corresponding to successive beam segments do not decrease and at least sometimes increase, and along the beam length from the beam mid-point to the second support, beam segment average widths corresponding to successive beam segments do not increase and at least sometimes decrease.

103. The optical waveguide switch of **claim 102**, the heating of the beam provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

104. The optical waveguide switch of **claim 102**, the heating of the beam provided by a beam heater current supplied by an included beam input and beam output.

105. The optical waveguide switch of **claim 102**, wherein the beam is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

106. The optical waveguide switch of **claim 102**, wherein the beam is fabricated in a device layer of a silicon-on-insulator wafer.

107. The optical waveguide switch of **claim 102**, wherein the beam comprises a plurality (n) of beam segments, where n does not equal 5.

108. The optical waveguide switch of **claim 102**, wherein the beam comprises exactly five (5) beam segments.

109. The optical waveguide switch of **claim 102**, wherein the beam comprises exactly three (3) beam segments having substantially parallel sides.

110. The optical waveguide switch of **claim 102**, wherein the beam comprises exactly two (2) beam segments that are substantially equal with respect to their corresponding beam segment lengths and beam segment widths.

111. An optical waveguide switch comprising a thermal actuator, the thermal actuator comprising:

a substrate having a surface;

a first support and a second support disposed on the surface and extending orthogonally therefrom;

a plurality of beams extending in parallel between the first support and the second support, thus forming a beam array;

each beam of the beam array having a first side, a second side, a beam length and a beam mid-point, each beam being substantially straight along its first side;

each beam of the beam array comprised of a plurality of beam segments, each beam segment of the plurality of beam segments having a beam segment average width orthogonal to the beam length, each beam thus forming a corresponding plurality of beam segment average widths;

wherein the plurality of beam segment average widths corresponding to each beam vary along the beam length based on a predetermined pattern;

an included coupling beam extending orthogonally across the beam array to couple each beam of the beam array substantially at the corresponding beam mid-point;

so that a heating of the beam array causes a beam array buckling and the coupling beam to translate in a predetermined direction generally normal to and outward from the second sides of the array beams.

112. The optical waveguide switch of **claim 111**, the predetermined pattern characterized in that, along the beam length from the first support to the beam mid-point, beam segment average widths corresponding to successive beam segments do not decrease and at least sometimes increase, and along the beam length from the beam mid-point to the second support, beam segment widths corresponding to successive beam segments do not increase and at least sometimes decrease.

113. The optical waveguide switch of **claim 112**, the heating of the beam array provided by an included heater layer disposed on the surface, the heater layer coupled to a heater layer input and a heater layer output.

114. The optical waveguide switch of **claim 112**, wherein each beam of the beam array is heated by a beam heater current supplied by an included beam input and beam output, thus forming the heating of the beam array.

115. The optical waveguide switch of **claim 112**, wherein each beam of the beam array is fabricated of a low-conductivity material of either monocrystalline silicon or polycrystalline silicon.

116. The optical waveguide switch of **claim 112**, wherein each beam of the beam array is fabricated in a device layer of a silicon-on-insulator wafer.

117. The optical waveguide switch of **claim 112**, wherein each beam of the beam array comprises a plurality (n) of beam segments, where n does not equal 5.

118. The optical waveguide switch of **claim 112**, wherein each beam of the beam array comprises exactly five (5) beam segments.

119. The optical waveguide switch of **claim 112**, wherein the beam array comprises a plurality (n) of beams, where n does not equal 3.

120. The optical waveguide switch of **claim 112**, wherein the beam array comprises exactly three (3) beams.